

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 11-K



(Mark One)

(X) ANNUAL REPORT PURSUANT TO SECTION 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2004

OR

() TRANSITION REPORT PURSUANT TO SECTION 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____

Commission file number 333-115185

A. Full title of the plan and the address of the plan, if different from that of the issuer named below:

MYCOGEN CORPORATION DEFERRED SAVINGS PLAN
9330 Zionsville Road
Indianapolis, Indiana 46268-1054

B. Name of issuer of the securities held pursuant to the plan and the address of its principal executive office:

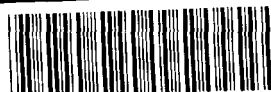
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FINANCIAL

THE DOW CHEMICAL COMPANY
2030 DOW CENTER
Midland, Michigan 48674

REQUIRED INFORMATION



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Financial statements for the years ended December 31, 2004 and 2003 and for the year ended December 31, 2004, supplemental schedules for the year ended December 31, 2004, and Report of Independent Registered Public Accounting Firm.

Exhibits

23 Consent of Independent Registered Public Accounting Firm

SIGNATURE

The Plan: Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this annual report to be signed on its behalf by the undersigned hereunto duly authorized.

MYCOGEN CORPORATION DEFERRED SAVINGS PLAN

DATE: June 27, 2005

BY: 

John A. Madia
Vice President - Human Resources and
Member, Dow AgroSciences Employee Benefits
Committee

Mycogen Corporation Deferred Savings Plan

*Financial Statements as of December 31, 2004 and
2003 and for the Year Ended December 31, 2004,
Supplemental Schedules for the Year Ended
December 31, 2004, and Report of Independent
Registered Public Accounting Firm*

MYCOGEN CORPORATION DEFERRED SAVINGS PLAN

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All other schedules required by Section 2520.013-10 of the Department of Labor's Rules and Regulations for Reporting, and Disclosure under the Employee Retirement Income Security Act of 1974 have been omitted because they are not applicable.



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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Committee for the Administration of the
Mycogen Corporation Deferred Savings Plan
Indianapolis, Indiana

We have audited the accompanying statements of net assets available for benefits of the Mycogen Corporation Deferred Savings Plan (the "Plan") as of December 31, 2004 and 2003, and the related statement of changes in net assets available for benefits for the year ended December 31, 2004. These financial statements are the responsibility of the Plan's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. The Plan is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. Our audits included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Plan's internal control over financial reporting. Accordingly, we express no such opinion. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, such financial statements present fairly, in all material respects, the net assets available for benefits of the Plan as of December 31, 2004 and 2003, and the changes in net assets available for benefits for the year ended December 31, 2004 in conformity with accounting principles generally accepted in the United States of America.

Our audits were conducted for the purpose of forming an opinion on the basic financial statements taken as a whole. The accompanying supplemental schedules listed in the Table of Contents are presented for the purpose of additional analysis and are not a required part of the basic financial statements, but are supplementary information required by the Department of Labor's Rules and Regulations for Reporting and Disclosure under the Employee Retirement Income Security Act of 1974. The supplemental schedules are the responsibility of the Plan's management. Such supplemental schedules have been subjected to the auditing procedures applied in our audits of the basic financial statements and, in our opinion, are fairly stated in all material respects when considered in relation to the basic financial statements taken as a whole.

Deloitte & Touche LLP

June 22, 2005

MYCOGEN CORPORATION DEFERRED SAVINGS PLAN

STATEMENTS OF NET ASSETS AVAILABLE FOR BENEFITS DECEMBER 31, 2004 AND 2003

	2004	2003
ASSETS:		
Plan interest in Master Trust:		
Investments	\$20,637,094	\$18,631,250
Participant loans	<u>111,557</u>	<u>125,474</u>
Total investments	20,748,651	18,756,724
Contributions receivable	<u>-</u>	<u>23,121</u>
Total assets	<u>20,748,651</u>	<u>18,779,845</u>
LIABILITIES—		
Distribution payable for excess contributions	<u>25,828</u>	<u>-</u>
Total liabilities	<u>25,828</u>	<u>-</u>
NET ASSETS AVAILABLE FOR BENEFITS	<u>\$20,722,823</u>	<u>\$18,779,845</u>

See notes to financial statements.

MYCOGEN CORPORATION DEFERRED SAVINGS PLAN

STATEMENT OF CHANGES IN NET ASSETS AVAILABLE FOR BENEFITS YEAR ENDED DECEMBER 31, 2004

ADDITIONS:

Investment income—Plan interest in The Dow Chemical Company Master Trust investment income	\$ 1,810,825
Net investment income	<u>1,810,825</u>
Contributions:	
Participants	1,359,130
Employer	<u>456,949</u>
Total contributions	<u>1,816,079</u>
Transfer from the Dow Chemical Company Employees' Savings Plan	<u>1,883</u>
Total additions	<u>3,628,787</u>

DEDUCTIONS:

Transfer to the Dow Chemical Company Employees' Savings Plan	17,022
Administrative expenses	486
Benefits paid to participants	<u>1,668,301</u>
Total deductions	<u>1,685,809</u>

NET INCREASE IN ASSETS AVAILABLE FOR BENEFITS	1,942,978
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NET ASSETS AVAILABLE FOR BENEFITS:

Beginning of year	<u>18,779,845</u>
End of year	<u>\$20,722,823</u>

See notes to financial statements.

MYCOGEN CORPORATION DEFERRED SAVINGS PLAN

NOTES TO FINANCIAL STATEMENTS YEARS ENDED DECEMBER 31, 2004 AND 2003

1. DESCRIPTION OF THE PLAN

From May 1, 2003 through August 28, 2003, the Mycogen Corporation (the “Company” or “Mycogen”) Deferred Savings Plan (the “Plan”) participated in a Master Trust with the Dow AgroSciences Employee Savings Plan. On August 29, 2003, the Plan began participating in a Master Trust with The Dow Chemical Company Employees’ Savings Plan.

The following description of the Plan provides only general information. Participants should refer to the Plan document or summary Plan description for a more complete description of the Plan’s provisions.

General—The Plan, which became effective February 1, 1987, is a defined contribution profit sharing and retirement plan subject to the provisions of the Employee Retirement Income Security Act of 1974 (“ERISA”), and covers substantially all employees of Mycogen and its participating subsidiaries. Employees of Mycogen are generally eligible to participate in the Plan on the first day of the first month on or immediately following the employee’s attainment of age 21 and the employee’s one year anniversary date (if the employee has completed at least 1,000 hours of service during the 12-month period commencing with such individual’s employment date).

The Company has been appointed as administrator of the Plan and investment fiduciary.

Employee Contributions—Participants may elect to contribute 1% to 30% for non highly-compensated employees and 1% to 20% for highly-compensated employees of their eligible compensation, as defined, to the Plan, subject to certain limitations imposed by the Internal Revenue Code (the “Code”). Additionally, participants who are at least 50 years old can make catch up contributions to the Plan, subject to certain limitations imposed by the Code. Contributions are made in investment options as directed by the participant.

Company Contributions—Mycogen may, at its sole discretion and without any obligation to do so, make a matching contribution each pay period on behalf of each qualified participant, as defined in the Plan. When the Company contributes to the Plan, the contribution to each participating employee’s account is an amount equal to 100% of the first 2% and 25% of the next 4% of employee contributions, with a limit of \$3,000 per year. Contributions are made in investment options as directed by the participant.

Temporary Investments—Temporary investments of the Master Trust are investments in short-term money market funds in the respective investment funds.

Account Valuation—Participant account balances reflect the total contributions made to the Plan by the employee and the Company, plus investment results (which are allocated on a pro rata basis) less expenses and withdrawals.

Vesting—Participants' contributions and allocated amounts of investment income or loss are fully vested at all times. Employer contributions may become fully vested upon participant retirement from the Company, death while an employee, becoming disabled while an employee, or upon partial or full termination of the Plan. Otherwise, the participant's vested interest in matching and discretionary contribution accounts, if any, is based upon months of service varying by participation date with employees being fully vested in matching and discretionary accounts after 60 months of service.

Forfeitures—Forfeitures of a participant's nonvested portion of his or her matching account occurs when a participant terminates and receives a distribution under the Plan or incurs 60 consecutive one month periods of severance or dies while not an employee. Forfeited amounts are held in a separate account and are used to reduce employer matching contributions or for other purposes as permitted. There were forfeitures of \$839 and \$13,966 available as of December 31, 2004 and 2003, respectively, which were used to reduce the payment of the employer contributions receivable included on the Statement of Net Assets Available for Benefits.

Benefits Distribution—On termination of services due to death, disability, or retirement, a participant becomes fully vested and may elect to receive either a lump sum amount equal to the value of the participant's interest in his or her account or annual installments generally not to exceed five years. For termination of services for other reasons, a participant may receive the value of the vested interest in his or her account as a lump sum distribution or in annual installments generally not to exceed five years. Withdrawals of a participant's account during the participant's employment are limited to financial requirements meeting the hardship provisions of the Plan, attainment of age 59½, or through borrowings under the loan provisions of the Plan.

Participant Loans—Participants may borrow from their accounts a minimum of \$500 up to a maximum of the lesser of \$50,000 or 50% of the account balance credited from employee contributions and rollovers (subject to the provisions of the Plan). Loans are to be repaid over a term not to exceed five years or 30 years for the purchase of a primary residence. Effective June 16, 2003, any new loan shall have a fixed term not to exceed five years.

The loans are secured by the balance in the participant's account and bear interest at a rate commensurate with prevailing interest rates as determined quarterly by the Plan administrator. Interest rates range from 4.00% to 11.50% at December 31, 2004. Principal and interest are paid ratably through semi-monthly or weekly payroll deductions.

Transfers—Certain employees who formerly worked for the Company and transferred directly to Dow AgroSciences LLC had their accounts in the Plan transferred to The Dow Chemical Company Employees' Savings Plan. These transfers are included as transfer to The Dow Chemical Company Employees' Savings Plan on the statement of changes in net assets available for benefits.

Administration—Expenses to administer the Plan are paid by Mycogen and certain bank fees are allocated to the individual participant accounts. The assets of the Master Trust for the Plan and The Dow Chemical Company Employees' Savings Plan are held by Fidelity Management Trust Company ("Fidelity") who acts as independent trustee, custodian, and recordkeeper for all the investments in the Master Trust. Fidelity manages certain Plan investments in the Master Trust, such as shares of commingled funds.

Amendment or Termination—The Plan does not have an expiration date. The Company, however, may at any time terminate, amend or modify the Plan, in accordance with the Plan, subject to certain rights of the Plan participants. Upon termination of the Plan, each participant is entitled to receive the entire balance in his or her account in accordance with the terms of the Plan.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of Accounting—The financial statements of the Plan have been prepared in accordance with accounting principles generally accepted in the United States of America. Investment transactions are accounted for on the trade date, and dividend and interest income are recorded when earned.

Use of Estimates—The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of net assets available for benefits and disclosures of contingent assets and liabilities at the date of the financial statements and the reported amounts of changes in net assets available for benefits during the reporting period. Actual results could differ from those estimates.

The Master Trust invests in common stock and various investment instruments including pooled funds. Investment securities, in general, are exposed to various risks, such as interest rate, credit, and overall market volatility. Due to the level of risk associated with certain investment securities, it is reasonably possible that changes in the values of investment securities will occur in the near term and that such changes could materially affect the amounts reported in the statements of net assets available for benefits.

Investments—Investments in the Master Trust consisting of common stock of The Dow Chemical Company and pooled funds are stated at fair value based upon quoted market price of such securities at year end. Investments in guaranteed investment contracts are stated at contract value. Temporary investments and participant loans receivable are stated at cost which approximates fair value. The Plan's interest in The Dow Chemical Company Master Trust investment income includes dividends, interest and net appreciation of investments.

Investments of the Interest Income Fund included in the Master Trust consist of unallocated contracts with insurance companies, bank guaranteed investment contracts ("GICs"), and synthetic investment contracts (see Note 3). Synthetic investment contracts operate similarly to a separate account investment contract, except that the assets are placed in a trust (with ownership by the Master Trust) rather than a separate account of the contract issuer. Investment contracts included in the Master Trust other than the synthetic arrangements are subject to fixed interest rates. The synthetic investment contracts provide for prospective crediting interest rate adjustments based on the interest earnings and fair value of the underlying trust assets. The crediting interest rates are reset monthly or quarterly, depending on the contract, and the contracts include wrappers that provide that the crediting interest rates cannot be less than zero. The average crediting interest rate of the synthetic investment contracts as of December 31, 2004 and 2003, was approximately 4.5% and 5.05%.

All investment contracts are considered benefit responsive and are therefore recorded at contract value in accordance with the American Institute of Certified Public Accountants' Statement of Position 94-4, *Reporting of Investment Contracts Held by Health and Welfare Benefit Plans and Defined Contribution Pension Plans*. The average yield for the Interest Income Fund was approximately 4.5% for the year ended December 31, 2004. There are no reserves against the contract value for credit risk of the contract issuer or otherwise.

Benefits Payable—Amounts payable to persons who have withdrawn from participation are not recorded as a liability of the Plan. There were no benefits payable to participants who have withdrawn from participation in the Plan as of December 31, 2004 and 2003.

Tax Status—The Internal Revenue Service (“IRS”) has determined and informed the Company by a letter dated February 22, 2002, that the Plan is qualified and the trust established under the Plan is tax-exempt under the appropriate sections of the Code. Although the Plan has been amended since receiving the determination letter, the Plan administrator believes that the Plan is designed and is currently being operated in compliance with the applicable provisions of the Code and as a result, no provision for taxes has been recorded in the Plan’s financial statements.

Derivative Instruments—The Plan accounts for derivative instruments in accordance with Statement of Financial Accounting Standards (“SFAS”) No. 133, *Accounting for Derivative Instruments and Hedging Activities*, as amended.

3. MASTER TRUST

Effective May 1, 2003, the Company created a Master Trust for the purpose of commingling certain investments of the Plan and the Dow AgroSciences Employee Savings Plan. The net assets of the Master Trust were held by Fidelity, who acted as the independent trustee, custodian, and record keeper, for certain investments of the Plan. Effective August 29, 2003, this Master Trust was terminated and the Master Trust assets were transferred into The Dow Chemical Company Employees’ Savings Plan Master Trust.

See following page

The net assets of the Master Trust of The Dow Chemical Company Employees' Savings Plan as of December 31, 2004 and 2003, are as follows:

Master Trust—Net Assets	2004	2003
Investments at fair value as determined by quoted market prices:		
The Dow Chemical Company common stock:		
Dow Stock fund	\$ 874,497,556	\$ 809,207,190
Leveraged Employee Stock Ownership Plan ("LESOP") fund (allocated shares)	709,532,959	608,735,159
Pooled funds	2,434,276,355	2,179,727,355
Temporary investments	53,196,721	73,089,521
Participant loans	101,384,201	94,524,266
Total	4,172,887,792	3,765,283,491
Investments at contract value (current value—2004: \$1,686,787,225; 2003: \$1,778,920,716):		
Guaranteed Investment Contracts ("GICs")	2,013,904	632,340,825
Synthetic GICs	1,630,556,223	1,074,922,825
Total	1,632,570,127	1,707,263,650
Other assets and liabilities of the Master Trust:		
Accrued interest and dividends receivable	13,855,980	16,772,992
Accrued liabilities	(24,355,715)	(57,175,840)
Total	(10,499,735)	(40,402,848)
Total net assets in the Master Trust	<u>\$ 5,794,958,184</u>	<u>\$ 5,432,144,293</u>

The total investment income of the Master Trust of The Dow Chemical Company Employees' Savings Plan for the year ended December 31, 2004, is as follows:

	2004
Net appreciation as determined by quoted market prices:	
Common stock of The Dow Chemical Company:	
Dow Stock fund	\$ 145,476,107
LESOP fund	115,822,366
Pooled funds	247,638,132
Net appreciation	508,936,605
Dividends	42,682,035
Interest	78,514,278
Total Master Trust investment income	<u>\$ 630,132,918</u>

As of December 31, 2004 and 2003, the plans participating in the Master Trust held the following interests in the Master Trust net assets:

		2004	2003
The Dow Chemical Company Employees' Savings Plan	99.7 %	\$ 5,774,209,533	\$ 5,413,387,569
Mycogen Corporation Deferred Savings Plan	0.3	<u>20,748,651</u>	<u>18,756,724</u>
Total Master Trust net assets available for benefits	<u>100.0 %</u>	<u>\$ 5,794,958,184</u>	<u>\$ 5,432,144,293</u>

The net investment income relating to the Master Trust was allocated daily to the participating plans by the trustee based on the Plan's interest in the individual funds of the trust.

4. RELATED PARTY TRANSACTIONS

The contribution receivable from Mycogen was \$0 and \$23,121 as of December 31, 2004 and 2003, respectively. Receivables exist at the end of the plan year due to the timing of payroll contributions to the trust.

All transactions with Fidelity qualify as party-in-interest transactions.

5. PROHIBITED TRANSACTIONS

The Department of Labor ("DOL") audited the Plan and determined that the Plan's procedure during the years 2001 through 2003 of wiring participant contributions to the Plan on a monthly basis as opposed to a semi-monthly basis was deficient. In March 2004, the Plan resolved all concerns with the DOL and made a corrective plan contribution of \$12,843 to the Plan to cover lost opportunity costs. The Plan already had changed its process to wire contributions semi-monthly and has committed to the DOL to wire participant contributions to the Plan within five business days of the relevant pay date.

* * * * *

SUPPLEMENTAL SCHEDULES

MYCOGEN CORPORATION DEFERRED SAVINGS PLAN

PLAN SPONSOR: MYCOGEN CORPORATION
 EMPLOYER IDENTIFICATION NO. 95-3802654
 PLAN NO. 001

SCHEDULE H, LINE 4j—SCHEDULE OF REPORTABLE TRANSACTIONS YEAR ENDED DECEMBER 31, 2004

(a) Identity of Party Involved	(b) Description of Asset	(c) Purchase Price	(d) Selling Price	(e) Lease Rental	(f) Expense Incurred with Transaction	(g) Cost of Asset	(h) Current Value of Asset on Transaction Date	(i) Net Gain
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NONE

MYCOGEN CORPORATION DEFERRED SAVINGS PLAN

PLAN SPONSOR: MYCOGEN CORPORATION

EMPLOYER IDENTIFICATION NO. 95-3802654

PLAN NO. 001

SCHEDULE H, LINE 4i—SCHEDULE OF ASSETS (HELD AT END OF YEAR)

YEAR ENDED DECEMBER 31, 2004

(a)	(b) Identity of Issue, Borrower, Lessor, or Similar Party	(c) Description of Investment Including Maturity Date, Rate of Interest, Collateral, Par, or Maturity Value	(e) Current Value
*	The Dow Chemical Company Master Trust:		
	Investments		\$ 20,637,094
*	Participant loans	Interest rates ranging from 4.00% to 11.50%. Loan maturities up to 30 years	111,557

* Represents a party-in-interest to the Plan.

MYCOGEN CORPORATION DEFERRED SAVINGS PLAN

PLAN SPONSOR: MYCOGEN CORPORATION
EMPLOYER IDENTIFICATION NO. 95-3802654
PLAN NO. 001

SCHEDULE H, PART IV, QUESTION 4a—DELINQUENT PARTICIPANT CONTRIBUTIONS YEAR ENDED DECEMBER 31, 2004

(a) Identity of Party Involved	(b) Relationship to Plan, Employer or Other Party-In-Interest	(c) Description of Transactions Including Maturity Date, Rate of Interest, Collateral, Par, or Maturity Value	(d) Purchase Price	(e) Selling Price	(f) Lease Rental	(g) Expenses Incurred with Transaction	(h) Cost of Asset	(i) Current Value of Asset	(j) Net Gain or (Loss) on Each Transaction
Mycogen Corporation	Plan sponsor	See below	See below	N/A	N/A	See below	N/A	See below	N/A

The Department of Labor ("DOL") audited the Plan and determined that the Plan's procedure during the years 2001 through 2003 of wiring participant contributions to the Plan on a monthly basis as opposed to a semi-monthly basis was deficient. In March 2004, the Plan resolved all concerns with the DOL and made a corrective plan contribution of \$12,843 to the Plan to cover lost opportunity costs. The Plan already had changed its process to wire contributions semi-monthly and has committed to the DOL to wire participant contributions to the Plan within five business days of the relevant pay date.

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Dow Chemical Company:

We consent to the incorporation by reference in Registration Statement No. 333-115185 of The Dow Chemical Company on Form S-8 of our report dated June 22, 2005, appearing in this Annual Report on Form 11-K of the Mycogen Corporation Deferred Savings Plan for the year ended December 31, 2004.

Deloitte & Touche LLP

Midland, Michigan
June 22, 2005